

REMARKS

Claims 1 and 2 were rejected under 35 U.S.C. §103(a) as being unpatentable over McCormick et al. (U.S. Patent No. 6,369,448) in view of Mostafazadeh et al. (U.S. Patent No. 5,783,870). Claim 3 was rejected under 35 U.S.C. §103(a) as being unpatentable over McCormick et al. in view of Mostafazadeh et al. and Natsume (Japanese Patent No. 407335680). Claim 4 was rejected under 35 U.S.C. §103(a) as being unpatentable over McCormick et al. in view of Mostafazadeh et al., Hirano et al. (U.S. Publication No. 2002/0153618) and Ball (U.S. Patent No. 5,952,725). Claim 5 was rejected under 35 U.S.C. §103(a) as being unpatentable over McCormick et al. in view of Mostafazadeh et al. and Ohuchi et al. (U.S. Patent No. 5,999,413).

According to amended claim 1, each of the plurality of film electrodes 15a are disposed on the rear surface of the semiconductor chip 15 to extend to the edge of the semiconductor chip 15, and the conductive film 17 is disposed on the top portion of the protruding electrodes to extend to the edge of the semiconductor chip 15.

By disposing peripheries of the film electrodes 15a and the conductive film 17 at the edge of the semiconductor chip, as shown in Fig. 9, side surfaces of the semiconductor chip 15 are exposed from the insulator resin film 16. This structure is suited for electrical connection of the electrodes 15a and 15b having the conductive film 17 on the chip to the terminals on the printed circuit board, if the semiconductor chip is laid on the side thereof, (see page 12, line 22 - page 13, line 2 in the present specification).

McCormick et al. teaches the use of solder bump 416 on the rear surface of the semiconductor chip, which corresponds to the solder used for mounting the chip on the printed circuit board.

Electrodes corresponding to the film electrodes 15a of the present invention are not disposed between the solder bumps 416 and the semiconductor chip in the reference.

Mostafazadeh et al. teaches a conductive film used as a contact pad 40 between the solder bump 42 and the semiconductor chip.

However, the contact pad 40 is disposed on the upper surface of the semiconductor chip, and does not extend to the edge of the semiconductor chip.

Both of the above cited references do not teach the structure claimed, wherein both the film electrodes 15a and the conductive film 17 extend to the edge of the semiconductor chip 15.

The structure of the present invention is thus different from McCormick et al. in view of Mostafazadeh et al. and should be patentable.

Claims 1-5 were rejected under the judicially – created doctrine of obviousness – type double patenting as being unpatentable over claims 1-20 of U.S. Patent No. 6,608,372. Applicants respectfully traverse this rejection. In contrast to the present claims, which include a conductive film 17, claims 1-20 of U.S. Patent No. 6,608,372 lacks any layer corresponding to the conductive film 17, and, this, the present claims are clearly different and patentable over claims 1-20 of U.S. Patent No. 6,608,372.

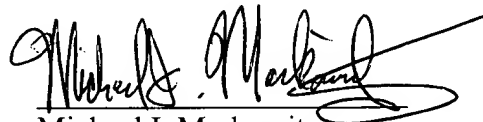
CLOSING

An earnest effort has been made to be fully responsive to the Examiner's objections. In view of the above amendments and remarks, it is believed that independent claim 1 is in condition for allowance, as well as those claims dependent therefrom. Passage of this case to allowance is earnestly solicited.

However, if for any reason the Examiner should consider this application not to be in condition for allowance, he is respectfully requested to telephone the undersigned attorney at the number listed below prior to issuing a further Action.

Any fee due with this paper, not fully covered by an enclosed check, may be charged on Deposit Account 50-1290.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Michael I. Markowitz", with a long horizontal flourish extending to the right.

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